A COMPARATIVE ANALYSIS OF THE READING SCORES OF STUDENTS ENROLLED IN THE SCHOOLS OF ATLANTA UNIVERSITY, 1961-63

A THESIS

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DEDICATION

To my parents, the late Mr. Eugene Jones, and Mrs. Inez Jones, for their parental guidance and devotion.

B.J.J.

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B.J.J.

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CHAPTER I

INTRODUCTION

Rationale

The dynamic age of automation has induced the present emphasis on the importance of adult reading among persons in mechanical and professional fields. The need for engaging in the reading act is more profoundly due to the demand for rapidity and accuracy in the more competitive areas. If the adult is to function productively in such an era, he must be capable of approaching any reading act with the precision and adeptness that is demanded of him in his chosen work.

This kind of demand is particularly obvious in professional schools. The ability to read at a productive rate and maintain at least seventy-five percent comprehension has proved to be an area of specific weakness for undergraduate and graduate students. It is felt by the writer that the inability to function satisfactorily in the reading area is more profound in those areas wherein there is little or no demand upon the students to read rapidly.

To meet the challenge of reading adequately, the comprehension skills of the adult reader should enable him to perform as extensively as his experiences and previous readings warrant. He brings to the reading act the ability to perceive and understand the author's pur-

poses and plan of organization; he sees the differences between central ideas and minor details; and he varies his rate to suit his purpose.

The major concern of many content areas is to have complete recall of minute details, allowing little or no opportunity for employing the many skills that should make up the total reading performance level of undergraduate and graduate students. While there are general comprehension skills required for practical readings, the various content areas warrant specific instruction and guidance for proper interpretation of the reading matter. Students should be made aware of the different techniques employed for a given subject to bring about better recall and application. It is noted that generalization of these skills hinders the performance of students in given content areas.

Heretofore, it has been considered the responsibility of the English department or the reading specialist to correct faulty reading habits or teach required skills for any area of reading. This is not entirely possible due to the specific demands of various areas such as technical vocabulary, purposes for reading and end results desired. The total comprehension skills of a student should enable him to function meaningfully and productively both in the classroom situation and in his profession. Furthermore, it should enable him to contribute significantly to the changing society of which he is a part.

Those persons who are preparing for the more professional fields,

along with those preparing to specialize in certain areas of the arts and sciences should be capable of employing varied rates of speed determined by the specific purposes of engaging in the given reading act. The ability to adjust oneself adequately to achieve the given purposes identified for specific reading makes for an astute reader as well as a student qualified to function satisfactorily in the chosen area of endeavor.

The mature reader should manifest the ability, desire and personally-induced motivation to perceive any reading anomaly as an area of needed improvement. His concern for self-improvement should enhance his willingness to work with those persons qualified to diagnose his specific weaknesses and assist him in eliminating them.

Psychological stability and mental alertness exhibited by graduate students serve as a basic framework for initiating a sound program of i instruction for those persons in need of remediation of reading disabilities. Negativism exhibited by students hinders the possibilities of improvement and the clinician's ability to work constructively with him. There must be a cooperative atmosphere or the entire purpose for such training is defeated in its initial stages of development and identification.

It appears that frequent measurement of the interrelationships of rate and comprehension abilities is, at least in part, responsible

For some of the earlier findings that fast readers are good readers. Upon examining the literature, Rankin makes the following statement:

> Many varied opinions are held concerning the relationship between reading speed and comprehension. Some people maintain that in order to comprehend, one should read slowly with careful attention to each word. On the other hand, some authorities have stated that a fast rate of speed and good comprehension go together. The relationship found between rate and comprehension appears to depend, in part, upon whether or not speed and comprehension are tested on the same material.[1]

From this kind of interpretation one might assume that the assessment of rate and comprehension on the same material would yield meaningful results, in that there are imposed time limits, making the correlation between rate and comprehension significant.

The degree to which students enrolled in the Atlanta University Schools of Arts and Sciences, Library Service, Social Work, Business Administration and Education can satisfactorily employ the skills needed for reading rate and comprehension - is reflected by the scores obtained on the Iowa Silent Reading Test. In that these two scores affect the overall median score for the examination, the extent to which these two skills correlate with the median score should prove significant. As was stated by Henry E. Garrett:

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[1] Earl F. Rankin, Jr., "The Relationship Between Reading Rate and Comprehension," Problems, Programs and Projects in College-Adult Reading Eleventh Yearbook of the National Reading Conference (Milwaukee, Wisconsin, 1962), p. 1.

> To enable us to tell whether one group is more variable than another, we need a measure which takes account both of central tendency and of the variability of the group, and which is independent of the units in which ability is expressed.[1]

The ability to interpret fully and accurately what one reads and the ability to perceive relationships between words can predict more closely than any other single measurement the probable success of a student in college. Obviously perceiving relationships between words is inherent in reading comprehension. By developing the interpretative skills of students in reading and by guiding them in intelligent reading - wide, thoughtful, critical, and discriminating - we build toward the true aim of education - wisdom.[2]

This study, then concerns itself with the performance levels of the students in each school at Atlanta University, as they compare with or differ from the remaining schools at Atlanta University during the years 1961-62 and 1962-63.

Evolution of the Problem

This problem evolved out of the interest of the writer in finding out about the reading levels in the respective schools. This concern was shared by a consultant to the Atlanta University Center Reading

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1 Henry E. Garrett, Statistics in Psychology and Education (New York: Longsman, Green and Co., 1953), p. 9.

2 Paul Farmer, "Literature, Reading and the College Board Exams," The English Journal, LI (January, 1962), p. 9.

Project, and hence, assumed greater significance for the writer. Specifically, they saw some merit in the study of the degree to which students preparing for one field of specialization performed satisfactorily or poorly in the area as revealed by their performance on the Iowa Silent Reading Test, administered at the beginning and end of the first semester of enrollment at Atlanta University.

It was the feeling of the consultant to the reading program and of the writer, who served as a graduate-assistant to the program, that a statistical analysis of the performance of students enrolled in one school compared with those of another could have significant implications for improvement in instruction for high school, college and graduate levels. The writer, then, sought to undertake this task as a thesis problem.

Contribution to Educational Knpwledge

This study provided an objective account of the extent to which graduate students were able to read rapidly and comprehend materials in the five schools of Atlanta University - Arts and Sciences, Library Service, Social Work, Business Administration and Education. The data provided by this study should serve to: (1) increase the awareness of the faculties of those schools of the weaknesses of graduate students in reading rate and comprehension, (2) reveal to college instructors and other personnel the need for more concentration in the area of read-

ing instruction, (3) afford a basis for improved instruction and remediation at the high school and college levels, and (4) increase general knowledge of reading capabilities and deficiencies exhibited by graduate students.

Statement of the Problem

The problem of this study was to determine any differences which might have existed in reading rate and comprehension performance levels among students enrolled in the five schools of Atlanta University during the years, 1961-1963.

Purpose of the Study

The general purpose of this study was to determine whether there was any significant difference between the tested reading performance levels of the students enrolled in the five schools of Atlanta University. More specifically the aim was to answer the following questions:

1. Did students enrolled in any one school excel over students enrolled in another?
2. Did the students enrolled in any one school perform to a lesser degree than those enrolled in another school?
3. Did students enrolled in any one school perform to the same degree as those enrolled in another school?
4. Did students within the more professional schools tend to re-

flect significant differences when compared with those within the arts and sciences?

5. What implications did those findings provide for upgrading and refining the program in reading for graduate students?

Definition of Terms

The following definitions were considered in this study:

1. "Schools" referred to those specific divisions of Atlanta University which comprise the various specializations in higher education.
2. "Reading rate" or speed of reading referred specifically to that particular timed measurement obtained from the administration of the Iowa Silent Reading Test.
3. "Comprehension" or basic understanding of content referred specifically to the measurement obtained from the administration of the Iowa Silent Reading Test.

Locale and Limitations of the Study

The locale of this encompassed five schools of Atlanta University-Arts and Sciences, Library Service, Social Work, Business Administration and Education. Each school encompassed purely graduate study, and has worked interchangeably to improve the type of instruction available, and the quality of students enrolled. There has been cooperative effort on the part of each school to improve the institution in all aspects.

The limitations of this study were as follows: (1) It was based on the performance of students on one standardized instrument, (2) it employed only general survey procedures of the descriptive method of research, and (3) it was concerned with the years, 1961-63.

Subjects and Materials

The subjects in this study were all persons enrolled at Atlanta University during the years 1961-62 and 1962-63.

The materials in this study were secured through the use of the instrument which will be described below.

The Iowa Silent Reading Test goes far beyond the ordinary general survey of a single phase of silent reading abilities. The test is designed to cover a wide range of the skills known to be indispensable to effective reading of the work-study type. The test measures three general areas of silent reading abilities; namely, (1) Rate of Reading at a Controlled Level of Comprehension, (2) Comprehension of Words, Poetry, Sentences, Paragraphs, and Longer Articles, and (3) Ability to Use Skills Required in Locating Information. The validity of the test is expressed in terms of the extent to which the test sets up situations calling into play the skills or abilities which experienced observers consider fundamental to success in the given field. Such judgements are represented by the opinions of experienced teachers, the recommendations of

committees and other qualified authorities. The reliability of this test was measured by correlating the scores on the even-numbered items of the test and correcting the resulting coefficient by application of the Spearman-Brown formula to yield an estimate of the reliability of the whole test rather than of half of the test. The coefficients reported in this test are based on a 10th grade population of 181 cases from Newton, New Jersey, where the four forms of the Advanced test were administered to random fourths of each class tested, one form to each pupil, and the BM, CM, and DM scores were converted to AM equivalents for the reliability calculations. One of the most important functions of these silent reading tests lies in their use in a class provides the teacher with a rather exact estimate of the level of development of a number of important elements of silent reading abilities in class, as well as with specific information in certain important skills areas concerning the limitations of the individuals comprising the class. To the extent that the skills measured by these tests represent important and basic abilities required in silent reading and in work-study procedures, low scores on the sub-tests indicate low abilities in these areas.[1]

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[1] H.A. Greene et al, Iowa Silent Reading Tests (New Edition) Advanced Test: Manual of Directions (New York: World Book Company, 1943), pp. 1-7.

Traxler stated that the Iowa Silent Reading Test attempts to obtain within a class period a large number of scores for purposes of diagnosis. Such tests, in which the time limits for the parts are very brief, either will have a large speed component in all scores, or the number of questions in each part will be low in reliability, or both.[1]

Method of Research

The method of research employed was the general survey procedures of the descriptive method of research, with statistical analysis of the data as the main technique for interpretation.

Operational Steps

The following operational steps were employed in this study:

1. Permission to execute the study was secured from the appropriate school officials.
2. The subjects were those persons enrolled in Atlanta University making up the total population sampling, 1961-62 and 1962-63.
3. Different forms of the Iowa Silent Reading Test which was administered at the beginning and end of the first semesters of enrollment at Atlanta University were used to ascertain the general tested reading comprehension and rate of the students.

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[1] Arthur E. Traxler, "Values and Limitations of Standardized Reading Tests," Evaluation of Reading Supplementary Educational Monographs, No. 88, (December, 1958), pp. 111-116.

4. The mean, standard deviation and standard error of the mean were used in making general descriptions of the respective populations.
5. The significance of the differences was obtained through statistics basic to the "t" test of reliability at the .05 percent level of confidence.

Survey of Related Literature

The survey of literature pertinent to the area of general reading rate and comprehension was made in order to facilitate the development of a framework for the research project. The areas in which the sruvey was made were as follows:

1. The nature of comprehension
2. The concept of rate
3. The relationships of the two components - rate and comprehension.
4. Reading in content areas
5. Related studies on reading proficiency of persons in various subject areas

The reader cannot deny that there must exist in the educational make-up of the student a degree of maturity as it relates to reading. Gray and Rogers feel that maturity in reading is distinguished by the attainment of those interests, attitudes and skills which enable young people and adults to participate eagerly, indepen-

dently, and effectively in all the reading activities essential to a full, rich, and productive life.[1] It is assumed that, in the satisfaction of interests and needs through reading, a mature reader will continue to grow in capacity to interpret broadly and deeply.

A broader view of the nature of reading is that it involves the recognition of the important elements of meaning in their essential relations, including accuracy and thoroughness in comprehension. These who hold this view believe that reading involves both the recognition of the meaning of words and phrases, and the fusing or organization of the various elements of meaning into a chain of ideas or an integrated system of thought.[2]

Fisher stated that practice in the use of various skills of comprehension would enable the reader to become more proficient.[3] It is on these basic skills that further improvement will depend. The adult who reads widely, becomes ever more adept in the use of these skills

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1 William S. Gray and Bernice Rogers, Maturity in Reading (Chicago, Illinois: University of Chicago Press, 1956), p. 56.

2 William S. Gray, "The Nature of Types of Reading," College and Adults Reading Programs, National Society for the Study of Education, XXXVI Part I (Bloomington, Illinois, 1937), pp.23-26.

3 Cora I. Fisher, "Extending Comprehension Skills," Starting and Improving College Reading Programs, Eighth Yearbook of the National Reading Conference (Fort Worth, Texas, April, 1959), pp. 60-66.

and builds an ever-increasing background of information on which to judge each new reading. This is the hope of the way of life which has pinned its faith on the belief that the voting public will ultimately make the right decision.

The aim of reading should be toward further understanding, and the amount of time required for this understanding should vary with the purpose of the reader and the difficulty level of the material read. As was stated by Harris, there is some evidence that in the upper levels of intelligence fast readers tend to be more efficient than slow readers, while at the average and lower intelligence levels the slower readers tend to be more efficient, especially on difficult material.[1]

There is no one rate of reading that is appropriate in all situations; rather, the efficient reader varies his rate according to his purpose and the requirements of the material. In regard to speed and comprehension, an individual may show one of three patterns: he may be retarded in both rate and comprehension; he may have a satisfactory rate but poor comprehension; or he may have satisfactory comprehension but be excessively slow.

Efficiency in reading is based on many factors. A rather common weakness found among adult readers is the tendency to read all

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[1] Albert J. Harris, How to Increase Reading Ability (New York: David McKay Company, Inc., 1961), pp. 504-511.

materials at much the same rate. As was pointed out by Heilman, in some situations, this is obviously wasteful. A facile and efficient reader will have developed the ability to read different materials at vastly different rates. He will also utilize a "change of pace;" some passages will be read rapidly and others slowly, according to the reader's background and purpose for reading. This ability to adjust one's reading rate to the terrain is referred to as flexibility.[1]

Reading rate may be rapid for easy and familiar materials read for the general ideas, or relatively slow for unfamiliar materials read for depth of meaning or for critical evaluation. As was stated by Robinson, flexibility of rates of reading is far more important than single rates, but, to determine the range within which the learner can be flexible, the two extremes need to be ascertained.[2]

Results of an investigation by Humphry of various methods of measuring reading rate led him to conclude that rate tests with relatively short time limits would yield as valid results as those yielded by tests involving longer time limits or testing time, even

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1 Arthur Heilman, "Rapid Reading:Uses and Abuses," Journal of Developmental Reading, V (Spring, 1962), p. 160.

2 Helen M. Robinson, "Corrective and Remedial Instruction," Development in and Through Reading Sixtieth Yearbook of the National Society for the Study of Education (Chicago, Illinois: 1961), p. 360.

though he found significant inter-individual and intra-individual differences in rate during successive time intervals when relatively long selections were read.[1] Reed's investigation included analyses of relationships among various obtained reading test scores. He concluded that rate is "an independent factor in the reading process."[2]

Insofar as the approach to reading is flexible, rate and comprehension will vary together. That is, if the reader has difficulty in comprehending, he will (if he is an adequate reader) slow down to understand. Reading rate should vary as the result of variations in the comprehending functions.[3]

The degree of relationship between rate and comprehension varies with the age of the readers, the kinds of materials used, and the methods used in measuring the two factors. There is some

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1 Kenneth H. Humphry, "An Investigation of Amount-Time and Time Limit Methods of Measuring Rate of Reading," Journal of Bevelopmental Reading, I (October, 1957), pp. 41-54.

2 James C. Reed, "Some Effects of Short-Term Training in Reading Under Conditions of Controlled Motivation," Journal of Educational Psychology, I (May, 1956), pp. 257-264.

3 Lawrence W. Carrillo and William D. Sheldon, "The Flexibility of Reading Rate," Journal of Educational Psychology, 43 (May, 1952), pp. 299-301.

evidence that the correlation is high when the reading matter is very difficult, while there is little or no relationship when the reading matter is easy. Probably this is because poor comprehension makes rereading necessary.

Much of the current attention to the desirability of improving rate is due to what appears to be a positive relationship between rate and comprehension. Many studies have found this positive relationship. Their results seem to imply that those students who read rapidly also comprehend better. Taken at face value, these studies support the belief that appropriate and differentiated rate training produces better comprehension and more efficient reading.[1]

The rapid, inaccurate reader needs experience in which, by taking comprehension tests, he becomes aware of his inaccuracy and interested in overcoming it. Often the desire to improve the comprehension scores is sufficient to bring about better attention to meaning. Rapid, inaccurate readers tend to finish but to get low scores because of many wrong answers. Slow, accurate readers tend to get low scores because they do not answer enough questions.

It was the concern of McDonald to determine the effect produced on reading rate and comprehension by varying the length of reading

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[1] George D. Spache, Toward Better Reading (Chicago, Illinois: Garrard Publishing Company, 1962), p. 48.

selections under differing conditions of timing. On the basis of statistical analysis of the results, he concluded that periodic interruptions of the type used in his study adversely affect comprehension although they do not affect reading rate.[1]

Harris states that rapid reading is an advantage when there is a large amount of reading matter to be covered, and mastering details is less important than learning generalizations, getting main ideas, and understanding relationships when the reading material is quite difficult or requires an exact and complete comprehension, as in much scientific and mathematical reading.[2]

Taking into consideration the possibility of comprehension's being sacrificed for the improvement of rate, Hill noted that rate is meaningful only in terms of understanding.[3] Improvement of fluency or flexible rate pf comprehension is dependent upon more than

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1 Arthur S. McDonald, "Factors Affecting Reading Test Performance," Research and Evaluation in College Reading, Ninth Yearbook of the National Reading Conference for College and Adults(Fort Worth, Texas, 1960), p. 28.

2 Albert J. Harris, Effective Teaching of Reading (New York: David McKay Company, Inc., 1962), p. 251.

3 Walter Hill, "Contributions of Education to College and Adult Reading," Phases of College and Other Adult Reading Programs, Tenth Yearbook of the National Reading Conference (Milwaukee, Wisconsin, 1961), p. 66.

machine practice and daily rate tests. Among other things, development of fluency must consider the correction of basic word deficiencies; the use of independent level materials; the determinations of reading purpose; the effective utilization of previewing, organizing, and retaining techniques; security and desire, and extensive reading of easy, interesting materials.

While concentrating on the degree to which the adult reader should be able to employ the various reading skills that it is felt he should master, many workers in the field have overlooked some very basic postulates in the pedagogy of reading improvement, as stated by Leedy.[1] They have been preoccupied with gadgetry and timed exercises, with accelerative procedures and multiple choice tests, but so far as developing an educative discipline of reading improvement little can be done that is either educationally or intellectually respectable. Until it is possible to spell out not only what the adult should do but how he should do it, the teaching of reading has not begun.

The general consensus of opinion is that with the onset of age, the possibility of skills learned deteriorating is very great, unless there is some special effort exerted to enrich or replenish the resources of such persons. Anderson stated that the possibility of word knowledge appearing to increase with age, reading skills required in

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[1] Paul D. Leedy, "New Frontiers in Teaching Reading to Adult Groups," New Frontiers in Reading, V (1960), pp. 49-51.

speed and comprehension may deteriorate with age unless some regular corrective practice is carried out.[1]

Before concentrated effort can be put forth to improve upon the skills currently exhibited, there must exist a proper professional interpretation of the approach to be used in an attempt to solve the problems and meet the needs of the students. As was stated by Spache, practices should be evaluated by such questions as :

1. Does this approach contribute to fluency?
2. Do these materials promote flexibility of approach to reading?
3. Do these steps contribute to training in different rates, differing degrees of comprehension, and adapting method of reading to purpose for reading?[2]

Only when the methods and aims of reading instruction are in harmony and thoroughly understood by all teachers can the criticisms of lay groups be answered, secure in the knowledge that full use is being made of the available information and research.

Increasingly, members of faculties are accepting the responsibility not only for teaching reading in their individual curricular

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1 A.W. Anderson, "The Relationship of Age to Adult Reading Scores," Journal of Educational Psychology, LI (June, 1960), p. 334.

2 George D. Spache, "What's Wrong With Our Teaching of Reading?" Journal of Education, 138 (October, 1955), pp. 19-27.

fields but also for varying the objectives, the methods, and the materials of instruction for students of differing reading achievement. These in the area are coming to a fuller realization of the fact that each young person cannot possibly achieve in keeping with his own highest potential in a given subject matter area if the goals he is expected to reach, the materials he uses, the assignments he is given, and the instruction he receives are the same as those of all of the other students in his group.

Stack feels that every teacher will do a better job of teaching the content of his own subject if he adapts his methods and his materials of instruction to the reading achievement of his students.[1] He may also find it necessary to devote some time to direct instruction of the reading skills essential for understanding his subject.

The reading problem exists in fields such as art, driver education, physical education, recreation, and health. Much that might be said of skill development in these fields has already been pointed out, yet, year after year, in thousands of classes all over the world, the same violations of sound practice are repeated in good faith. Every teacher in every field should learn how to put the findings of research to work in his classes. And many more teachers

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[1] Eileen C. Stack, "Using Reading Achievement as a Guide In Instruction in Content Areas," Evaluation of Reading Supplementary Educational Monographs, No. 88 (December, 1958), pp. 61-75.

than have so far volunteered should appoint themselves investigators of the reading problems peculiar to their areas, explorers and reporters of successful techniques.

Lorge's definition of thinking is challenging to the teacher of the social studies. "Thinking is an active process. It seeks and searches. It organizes and generalizes. It collects and solves."Thinking does not always produce a set answer. It is not memory, although it uses what is remembered; it is not generalization, but the process of arriving at generalization. Thinking is basically an attitude of suspended judgement about the problems all of us face.[1]

In her related study, Taylor states that remedial measures for specific difficulties should be suited to the particular needs of the individual and, above all, should be flexible.[2] Special training should be given to develop the essential reading skills.

Wiggins came to the following conclusions on the basis of her study of a group of freshman college women.

1. With regard to rate of reading achievement and its essential components of comprehending simple content and understanding paragraphs, at the reader's own depth of comprehension and at her normal rate, the students showed variable reading rates and/or levels.

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1 Ruth Strang, et al, The Improvement of Reading, (New York: McGraw-Hill Book Company, Inc., 1961), pp. 154-156.

2 Catherine Lillian Taylor, "An Analysis of Reading Difficulties," (unpublished Master's theses, Trevor Arnett Library, Atlanta University, 1939), p. 16.

2. It was concluded that these students evidenced weaknesses which could prove to be serious handicaps in subject areas where success depends upon extensive reading.
3. The fact that students reflected difficulties in the more specialized areas of comprehension seemed to imply a need for strengthening the program of reading in content areas.[1]

Summary of Related Literature

The review of related literature and research studies yielded the following conclusions:

1. Comprehension skills enable the reader to function profitably in the reading act, through broad and deep interpretation.
2. The concept of rate as an independent factor in the reading process is not wholly accepted. It is felt that there is a direct correlation between rate and comprehension.
3. The relationship between these two factors was indicated as being determined by the level of maturity of the reader.
4. Specific skills are needed for functioning in the content areas, and these skills should be taught by the respective teachers.

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[1] Nellie D. Wiggins, "An Analysis of Reading Achievement in Difficulties of College Students," (unpublished Master's theses, Trevor Arnett Library, Atlanta University, 1962), pp. 100-105.

5. The relationship between general comprehension skills and reading rate was evidenced in related studies dealing with reading proficiency of college students. The fact that students reflected difficulties in the more specialized areas of comprehension seemed to imply a need for strengthening the program of reading in content areas.

On the basis of these conclusions drawn from the review, the data for this study were treated statistically and analyzed for comparability or deviation from the reported results of previous research.

CHAPTER II

PRESENTATION AND INTERPRETATION OF DATA

Introductory Statement

In this study, the researcher determined, compared and related the reading performance levels of the five schools at Atlanta University. More specifically, she ascertained the extent to which one school performed more proficiently, as well as, or to a lesser degree than another as revealed by the Iowa Silent Reading Test for the period of this investigation. In accordance with the basic design of the study, the purposes are answered in sections following the general description of procedures.

General Description of Procedures

In the treatment of each set of data, the researcher obtained the performance levels of each school on the Iowa Silent Reading Test for the periods designated. The general results on the Iowa Silent Reading Test are reported through the use of the following statistical measures:

1. The mean was the measure used to determine the sum of the individual measures of the Iowa Silent Reading Test which was more representative of all the scores obtained on the test than a value from either extreme.
2. The standard deviation was the measure used to determine

the degree of variability from the mean for the testing population.

3. The standard error of the means were used to determine the reliability of the means.
4. The standard error of the differences between the means were used to determine the degree of error in the differences, if and, and the significance of each.
5. The differences between the means were used to ascertain the variation of one group of scores from the other.
6. The "t" test of significance was used to determine the significance of the various statistics at the .05 level of confidence.
7. The probability was found to determine the frequency of occurrence of the obtained statistical results.

General Measures of Rate, 1961

The data relevant to the performance levels of the five schools in the area of general reading rate, comprehension and the median scores obtained are presented in Tables 1-12 for October, 1961 and October, 1962.

Performances on the Rate Sections of the Iowa Silent Reading Test, Advanced Form AM.-- Table 1 shows the mean, standard deviation and standard error of the means for each of the five

TABLE 1

MEAN, STANDARD DEVIATION AND STANDARD ERROR OF THE MEANS, OCTOBER, 1961, GENERAL READING RATE

School	Number	Mean	Standard Deviation	Standard Error
Arts and Sciences	100	203.94	55.30	5.56
Business Administration	8	202.0	21.02	8.16
Education	41	184.34	24.34	15.21
Library Service	24	180.79	20.05	4.18
Social Work	38	201.05	108.40	17.83

schools for Ocotber, 1961. The School of Arts and Sciences, with an enrollment of 100 students, had an observed mean of 203.94 in the area of general reading rate. This average rating was higher than the remaining schools. Among the schools of comparable enrollment the mean scores for the School of Social Work, Education and Library Service were 201.05, 184.34, and 180.79, respectively. It may be noted further, that the schools exhibited a high degree of variability, but the Schools of Arts and Sciences and Social Work showed the wider incidence of scatter, and particularly in the case of the School of Social Work it should be noted that variability such as this would

TABLE 2

COMPARATIVE DATA OF READING
RATE FOR OCTOBER, 1961

School	Difference Between Means	Standard Error of Difference Between Means	"t"	p
Education				
Arts and Sciences	19.60	6.78	2.89	.0038
Business Adm.	17.66	9.43	1.87	.0614
Library Service	3.55	5.68	.62	.5352
Social Work	16.71	18.26	.70	.4840
Arts and Sciences				
Business Adm.	1.94	10.24	.19	.8494
Library Service	23.15	6.93	3.34	.0010
Social Work	2.89	18.66	.15	.8808
Business Administration				
Library Service	21.21	9.55	2.22	.0264
Social Work	.95	19.79	.05	.9602
Library Service				
Social Work	20.26	18.31	1.11	.2670

indicate that the mean score is far from being typical of this group. The School of Business Administration, with an enrollment of 8 had a mean of 202.0 with a standard deviation of 21.02, and a standard error of the mean of 8.16. Again, the marked variability of the group is evident.

Comparative Data in the Area of Rate of Reading. Table 2 presents comparative data based on the performance levels in the area of the reading rate of students enrolled in one school compared with those enrolled in every other school.

School of Education as Compared with Other Schools in the Area of Rate- Table 2 indicates students in the School of Arts and Sciences as having a higher average rate of reading than the enrollees of the School of Education. The difference between the means was 19.60 with a standard error of the difference between the means of 6.78. The resulting "t" ratio of 2.89 indicated the difference in average ratings of the two schools to be significant at the .05 level of confidence. It was noted, furthermore, that the probability of such an occurence was .0038. These specific data provided the basis for the conclusion that between the School of Education and the School of Arts and Sciences the difference in rate was definitely significant.

When the School of Education and the School of Library Service were compared as to rate of reading the differences between the means was 3.55; the standard error of the difference between the two means

was 5.68; and the "t" ratio was .62. At the .05 level of confidence the difference was negligible, and the probability of such a result's occuring was .5352. These statistics led to the conclusion that between the students in the School of Education and the School of Library Service the difference in reading rate was a matter of chance.

The School of Education, when compared with the School of Business Administration showed a difference between the two means of 17.66, a standard error of the difference between them of 9.43, and a resulting "t" ratio of 1.87. At the .05 level of confidence the latter value was not significant, and the probability of such as occurence was .0614. This difference between mean reading rate of the students in business and education was a chance occurence.

Between the School of Education and the School of Social Work the difference in means was 16.71 with a standard error of the difference between them computed to be 18.26. The obtained "t" ratio was .70 indicating no significant difference in reading rate at the 5 percent level of confidence. The measure of probability was .4840, and coupled with the other results, the conclusions were drawn that between students in education and social work the mean difference was a chance variation.

In general, therefore, the data indicated that in terms of statistically significant differences in rate of reading the School of Education was surpassed by the School of Arts and Sciences and was

generally on par with the other schools.

School of Arts and Sciences as Compared with Other Schools in Rate of Reading.-- Data in Table 2 revealed that between the School of Arts and Sciences and the School of Library Service, the difference in means was 23.15, with a standard error of difference between them of 6.93. The observed "t" ratio was 3.34 and decidedly significant at the 5 percent level of confidence. These data, in conjunction with a probability measure of .0010 indicated that in average rate of reading the students in arts and sciences and library service were different, with the School of Arts and Sciences registering the advantage.

When the School of Arts and Sciences was compared with the School of Social Work in mean rate of reading, the difference between the means was 2.89, the standard error of this difference, 18.60, and the observed probability, .8808. The resulting "t" ratio of .15 was not significant at the .05 level of confidence, and hence, led to the conclusion that in average rate of reading students in arts and sciences and social work were relatively the same.

In comparison of mean rate of reading scores the School of Arts and Sciences and the School of Business Administration showed a difference between the means of 1.94, a standard error of this difference of 10.24, and a resulting "t" ratio of .19 with a probability measure of .84.94. It was concluded, therefore, that in average rate of read-

ing the students in arts and sciences and business were highly comparable.

In general the data indicated that in terms of significant differences in rate of reading the School of Arts and Sciences was above or highly similar when all schools were taken into consideration.

School of Business Administration as Compared with Other Schools in Rate of Reading. Data in Table 2 showed the difference between mean performances in reading rate of the School of Business and the School of Library Service to be 21.21, with a standard error of difference between them of 9.55. Subjection of the data to the "t" test of significance yielded a ratio of 2.22 which was significant at the .05 level of confidence. The observed probability was .0064 and the results led to the conclusion that students in business administration and library service differ in rate of reading in favor of the former.

When the means of students in the Schools of Business Administration and Social Work were compared it was noted that the difference was .95, the standard error of difference between them, 19.79, and the resulting "t" ratio, .05 at the .05 level of confidence. The probability of the frequency of occurence of this type of performance was .9602. These results indicated that the numerical difference between rate of reading test performances of the students in business and social work was not significant.

In both instances it was concluded that in the area of rate of reading, students in the School of Business Administration tended to be above or on par with all populations when considered in terms of all other schools.

School of Library Service as Compared with Another School in Rate of Reading.--When the mean reading rate performance of the Schools of Library Service and Social Work were compared, it was noted that the difference was 20.26, the standard error of the difference between them, 18.31, and the resulting "t" ratio, 1.11. The probability of frequency of occurrence was found to be .2670 and it was concluded that between mean performances the students in library service and social work were not significantly different.

In general comparison with all schools the Schools of Library Service was noted to be exceeded only in average rate of reading by the School of Arts and Sciences.

General Measures of Comprehension, 1961

Performances on the Comprehension Sections of the Iowa Silent Reading Test, Advanced Form AM.-- Table 3 shows the mean, standard deviation and standard error of the means in the area of comprehension for the five schools for October, 1961. The School of Arts and Sciences, with an enrollment of 100 students, had an observed mean of 181.88, comparable only to the School of Library Service, with a mean of 181.62, and an enrollment of 24. The schools exhibit-

ing the highest degree of variability were the Schools of Education and Arts and Sciences, with the School of Education having the widest scatter, indicating that the mean score is far from being typical of this group. The School of Social Work had the smallest observed standard deviation of 3.03 and standard error of the mean Of .49, indicating that the variability of the scores was much smaller than in the other schools. The School of Business Administration, with an enrollment of 8 had a mean of 179.87, with a standard deviation of 28.80 and a standard error of the mean of 11.30. This was indicative of considerable variability.

TABLE 3

MEAN, STANDARD DEVIATION AND STANDARD ERROR OF THE MEANS, OCTOBER, 1961 COMPREHENSION

School	Number	Mean	Standard Deviation	Standard Error
Arts and Sciences	100	181.88	49.59	4.98
Business Administration	8	179.87	28.80	11.80
Education	41	168.34	109.70	17.58
Library Service=	24	181.62	17.50	3.65
Social Work	38	165.23	3.03	.49

TABLE 4

COMPARATIVE DATA OF READING COMPREHENSION FOR OCTOBER, 1961

School	Difference Between Means	Standard Error of Difference Between Means	"t"	p
Education				
Arts and Sciences	13.54	18.25	.74	.4592
Business Adm.	11.53	21.16	.54	.5892
Library Service	13.28	17.95	.74	.4592
Social Work	3.11	17.57	.18	.8572
Arts and Sciences				
Business Adm.	2.01	12.80	.16	.8728
Library Service	.26	6.16	.04	.9680
Social Work	16.65	5.01	3.32	.0010
Business Administration				
Library Service	1.75	12.50	.14	.8886
Social Work	14.64	11.79	1.24	.2150
Library Service				
Social Work	16.39	3.62	4.53	.01

Comparative Data in the Area of Comprehension.-- Table 4 presents comparative data based on the performance levels in the area of comprehension of students enrolled in one school compared with those enrolled in every other schoo.

School of Education as Compared with Other Schools in Comprehension-- Table 4 indicates students in the School of Arts and Sciences as having a comparable average level of comprehension than the enrollees of the School of Education. The difference between the means was 13.54 with a standard error of the difference between the means of 18.25. The resulting "t" ratio of .74 indicated the difference in average ratings of the two schools to be negligible at the .05 level of confidence. It was noted, furthermore, that the probability of such an occurence was .4592. These specific data provided the basis for the conclusion that between the School of Education and the School of Arts and Sciences the difference in comprehension was purely by chance.

When the School of Education and the School of Library Service were compared as to level of comprehension the differences between means was 13.28; the standard error of the difference between the two means was 17.95; and the "t" ratio was .74. At the .05 level of confidence the difference was insignificant, and the probability of such a result's occuring was .4592. These statistics led to the conclusion that between the students in the School of Education and the School of Library Service the difference in level of comprehension was a chance occurence.

The School of Education when compared with the School of Business Administration showed a difference between the two means of 11.53, a standard error of the difference between them of 21.16, and a resulting "t" ratio of .54. At the .05 level of confidence the latter value was not significant and the probability of such an occurence was .5892. This difference between mean level of comprehension of the students in business and education was a matter of chance,

Between the School of Education and the School of Social Work the difference in means was 3.11, with a standard error of the difference between them computed to be 17.57. The obtained "t" ratio was .18 indicating a negligible relationship in comprehension at the 5 percent level of confidence. The measure of probability was .8572 and coupled with the other results, the conclusion was drawn that between students in education and social work the mean difference was a chance occurence.

In general, therefore, the data indicated that in terms of statistically significant differences in comprehension the School of Education was surpassed by neither school and was generally on par with the total population.

School of Arts and Sciences as Compared with Other Schools in Comprehension.-- Data in Table 4 revealed that between the School of Arts and Sciences and the School of Library Service, the difference in means was .26, with a standard error of difference between them of 6.16. The observed "t" ratio was .04 and insignificant at the 5 per-

cent level of confidence. These data, in conjunction with a probability measure of .9680 indicated that in comprehension the students in arts and sciences and library service were comparable.

When the School of Arts and Sciences was compared with the School of Social Work in mean level of comprehension the difference between the means was 16.65, the standard error of this difference, 5.01, and the observed probability, .0010. The resulting "t" ratio of 3.32 was significant at the .05 level of confidence, and hence, led to the conclusion that in comprehension students in arts and sciences and social work were different with the School of Arts and Sciences registering the advantage.

In comparison of mean comprehension scores the School of Arts and Sciences and the School of Business Administration showed a difference between the means of 2.01, a standard error of this difference of 12.80, and a resulting "t" ratio of .16 with a probability of .8728. It was concluded, therefore, that in average comprehension the students in arts and sciences and business were relatively the same on comprehension performance.

In general the data indicated that in terms of significant differences in the area of comprehension the School of Arts and Sciences was superior or comparable when all schools were taken into consideration.

School of Business Administration as Compared with Other Schools in Comprehension.- Data in Table 4 showed the difference between mean performances in comprehension of the School of Business and the School of Library Service to be 1.75, with a standard error of difference between them of 12.50. Subjection of the data to the "t" test of significance yielded a ratio of .14 which was negligible at the .05 level of confidence. The observed probability was .8886 and the results led to the conclusion that students in business administration and library service are relatively comparable in comprehension.

When the means of students in the School of Business Administration and Social Work were compared it was noted that the difference was 14.64, the standard error of difference between them, 11.79 and the resulting "t" ratio 1.24 at the .05 level of confidence. The probability of the frequency of occurence of this type of performance was .2150. These results indicated that the numerical difference between comprehension test performances of the students in business and social work was not significant.

In both instances it was concluded that in the area of comprehension students in the School of Business Administration tended to be superior when considered in terms of all other schools.

School of Library Service as Compared with Another School in Comprehension.-- When the mean comprehension performances of the School of Library Service and Social Work were compared, it was noted

that the difference was 16.39, the standard error of the difference between them, 3.62, and the resulting "t" ratio, 4.53. The probability of frequency of occurrence was found to be greater than .01, and it was concluded that between mean performances of students in library service and social work were decidedly different.

In general comparison with all schools the School of Library Service was noted to be comparable to all other schools and superior to, the School of Social Work.

General Measures of Median Scores, 1961

Performances on the Over-all Median Scores of the Iowa Silent Reading Test, Advanced Form AM.-- Table 5 shows the mean, standard deviation and standard error of the means for the five schools as indicated by the overall median scores for October, 1961. Among the schools with cpmparable means the Schools of Business Administration, Library Service and Arts and Sciences obtained mean scores of 174.62, 174.12, and 172.90, respectively. It may be noted that the schools portrayed a high degree of variability, with the School of Arts and Sciences having the wider incidence of scatter. The Schools of Education and Social Work were comparable in mean scores of 165.43 and 169.42, respectively. The variability evidenced by there two schools indicated a marked fluctuation among all schools in overall performance levels as indicated by the median scores.

TABLE 5

MEAN, STANDARD DEVIATION, AND STANDARD ERROR OF THE MEAN, OCTOBER, 1961 MEDIAN SCORE

School	Number	Mean	Standard Deviation	Standard Error
Arts and Sciences	100	172.90	47.28	4.75
Business Administration	8	174.62	23.80	9.75
Education	41	165.43	19.46	3.12
Library Service	24	174.12	18.37	3.83
Social Work	38	169.42	12.65	2.08

Comparative Data in the Area of Overall Test Performance. Table 6 presents comparative data based on the performance levels in the area of overall median scores of students enrolled in one school compared with those enrolled in every other school.

School of Education as Compared with Other Schools in Overall Test Performance.-- Table 6 indicates students in the School of Arts and Sciences as having a comparable average median score with the enrollees of the School of Education. The difference between the means was 7.47, with a standard error of the difference between the means of 5.65. The resulting "t" ratio of 1.32 indicated the diff-

TABLE 6

COMPARATIVE DATA FOR MEDIAN SCORES, OCTOBER, 1961

School	Difference Between Means	Standard Error of Difference Between Means	"t"	p
Education				
Arts and Sciences	7.47	5.65	1.32	.1868
Business Adm.	9.19	10.20	.90	.3682
Library Service	8.69	3.75	2.32	.0204
Social Work	3.99	3.74	1.07	.2846
Arts and Sciences				
Business Adm.	1.72	10.82	.16	.8728
Library Service	1.22	6.17	.20	.8414
Social Work	3.48	5.14	.68	.4966
Business Administration				
Library Service	.50	10.47	.05	.9602
Social Work	5.20	9.96	.52	.6030
Library Service				
Social Work	4.70	4.35	1.08	.2802

erence in average ratings of the two schools to be insignificant at the .05 level of confidence. It was noted, furthermore, that the probability of such an occurence was .1868. These specific data provided the basis for the conclusion that between the School of Education and the School of Arts and Sciences the difference in median scores was a matter of chance.

When the School of Education and the School of Library Service were compared as to median scores the differences between means was a matter of chance.

When the School of Education and the School of Library Service were compared as to median scores the differences between means was 8.69; the standard error of the difference between the two means was 3.75; and the "t" ratio was 2.32. At the .05 level of confidence the difference was significant, and the probability of such a result's occuring was .0204. These statistics led to the conclusion that between the students in the School of Education and the School of Library Service the difference in median scores was significant in favor of the latter.

The School of Education, when compared with the School of Business Administration showed a difference between the two means of 9.19, a standard error of the difference between them of 10.20, and a resulting "t" ratio of .90. At the .05 level of confidence the latter value was negligible and the probability of such an occurence

was .3682. This difference between mean median scores of the students in business and education was purely by chance.

Between the School of Education and the School of Social Work the difference in means was 3.99 with a standard error of the difference between them computed to be 3.74. The obtained "t" ratio was 1.07 indicating no significant difference in median scores at the 5 percent level of confidence. The measure of probability was .2846 and coupled with the other results, the conclusion was drawn that between students in education and social work the mean difference was a matter of chance.

In general, therefore, the data indicated that in terms of statistically significant differences in median scores the School of Education was surpassed by the School of Library Service and was generally on par with all other schools.

School of Arts and Sciences as Compared with Other Schools in Median Scores.-- Data in Table 6 revealed that between the School of Arts and Sciences and the School of Library Service, the difference in means was 1.22 with a standard error of the difference between them of 6.17. The observed "t" ratio was .20 and negligible at the 5 percent level of confidence. These data, in conjunction with a probability measure of .8414 indicated that in median scores the students in arts and sciences and library service were relatively comparable.

When the School of Arts and Sciences was compared with the School of Social Work in mean median scores the difference between the means was 3.48, the standard error of this difference, 5.14, and the observed probability, .4966. The resulting "t" ratio of .68 was insignificant at the .05 level of confidence, and hence, led to the conclusion that in overall test performance students in arts and sciences and social work were performing to a similar degree.

In comparison of mean median scores the School of Arts and Sciences and the School of Business Administration showed a difference between the means of 1.72, a standard error of this difference of 10.82 and a resulting "t" ratio of .16 with a probability of .8728. It was concluded, therefore, that in average overall median scores the students in arts and sciences and business were not significantly different in overall test performance.

In general the data indicated that in terms of significant differences in overall test performance the School of Arts and Sciences was equivalent in level of performance when all schools were taken into consideration.

School of Business Administration as Compared with Other Schools in Median Scores.-Data in Table 6 showed the difference between mean performances in median scores of the School of Business Administration and the School of Library Service to be .50, with a standard error of difference between them of 10.47. Subjection of the data to

the "t" test of significance yielded a ratio of .05 which was negligible at the .05 level of confidence. The observed probability was .9602 and the results led to the conclusion that students in business administration and library service were comparable in overall test performance.

When the means of students in the School of Business Administration and Social Work were compared it was noted that the difference was 5.20, the standard error of difference between them of 4.35, and the resulting "t" ratio, 1.08 at the .05 level of confidence. The probability of the frequency of occurence of this type of performance was .2802. These results indicated that the numerical difference between the overall test performances of the students in business and social work was not significantly different.

In both instances it was concluded that in the area of overall median scores students in the School of Business Administration tended to be reasonably comparable in overall test performance when considered in terms of all other schools.

School of Library Service as Compared with Another School in Median Scores.-- When the mean median score performances of the Schools of Library Service and Social Work were compared, it was noted that the difference was 4.70, the standard error of the difference between them, 4.35, and the resulting "t" ratio 1.08. The probability of frequency of occurence was found to be .2802 and it

was concluded that between mean performances the students in library service and social work were not significantly different in overall test performance.

In general comparison with all other schools the School of Library Service was noted to be surpassed by the School of Education and comparable to all others.

General Measures of Rate, 1962

Performances on the Rate Sections of the Iowa Silent Reading Test, Advanced Form AM.-- Table 7 shows the mean, standard deviation, and standard error of the mean for the five schools in the area of general reading rate for October, 1962. The School of Arts and Sciences, with a mean s ore of 276.03, obtained the highest performance level in the area of general reading rate, with a standard deviation of 5.66, indicating the degree of variability from the mean to be small, and the consistency of the group performance with the obtained mean. The School of Social Work, with the observed mean of 204.66, and a variability score of 14.80, was indicative of the wide scattering of scores in the area, and the degree of diver - sion from the obtained mean score. The schools most nearly comparable in mean scores were the Schools of Education, Business Administration, and Library Service, with the mean scores of 180.61, 193.45 and 179.09, respectively. The variability of the mean scores

TABLE 7

MEAN, STANDARD DEVIATION, AND STANDARD ERROR OF THE MEAN, FOR OCTOBER, 1962 GENERAL READING RATE

School	Number	Mean	Standard Deviation	Standard Error
Arts and Sciences	67	276.03	5.66	.70
Business Administration	22	193.45	19.70	4.30
Education	77	180.61	20.10	2,31
Library Service	11	179.09	26.70	8.45
Social Work	39	204.66	14.80	2.40

indicated the great diversion from the obtained mean, and the degree to which the obtained mean might be representative of the total groups in the area of general reading comprehension. In this area, the degree of variability far surpassed the obtained mean scores in all but one of the five schools.

Comparative Data in the Area of Reading Rate. Table 8 presents comparative data based on the performance levels in the area of reading rate of students enrolled in one school compared with those enrolled in every other school.

TABLE 8

COMPARATIVE DATA OF READING
RATE FOR OCTOBER, 1962

School	Difference Between Means	Standard Error of Difference Between Means	"t"	p
Education				
Arts and Sciences	95.42	2.40	39.76	.01
Business Adm.	12.84	4.81	2.67	.0076
Library Service	1.52	8.75	.17	.8650
Social Work	24.05	3.31	7.26	.01
Arts and Sciences				
Business Adm.	82.58	4.34	4.34	.01
Library Service	96.94	8.46	11.46	.01
Social Work	71.37	2.45	29.13	.01
Business Administration				
Library Service	14.36	9.46	.15	.8808
Social Work	11.21	4.90	2.29	.0220
Library Service				
Social Work	25.57	8.78	2.91	.0036

School of Education as Compared with Other Schools in Reading Rate.-- Table 8 indicates students in the School of Arts and Sciences as having a higher average reading rate than the enrollees of the School of Education. The difference between the means was 95.42 with a standard error of the difference between the means of 2.40. The resulting "t" ratio of 39.76 indicated the difference in average ratings of the two schools to be decidedly significant at the .05 level of confidence. It was noted, furthermore, that the probability of such an occurence was greater than .01. These specific data provided the basis for the conclusion that between the School of Education and the School of Arts and Sciences the difference in reading rate was overly significant in favor of the School of Arts and Sciences.

When the School of Education and the School of Library Service were compared as to reading rate the difference between means was 1.52; the standard error of the difference between the two means was 8.75; and the "t" ratio was .17. At the .05 level of confidence the difference was not significant and the probability of such a result's occuring was .8650. These statistics led to the conclusion that between the students in the School of Education and the School of Library Service the difference in reading rate was a matter of chance.

The School of Education, when compared with the School of Business Administration showed a difference between the two means of 12.84, a

standard error of the difference between them of 4.81, and a resulting "t" ratio of 2.67. At the .05 level of confidence the latter value was very significant and the probability of such an occurence was .0076. This difference between mean reading rate of the students in business and education was indicative of the School of Education performing to a degree inferior to that of the School of Business Administration.

Between the School of Education and the School of Social Work the difference in means was 24.05, with a standard error of the difference between them computed to be 3.31. The obtained "t" ratio was 7.26 indicating significant difference in reading rate at the .05 level of confidence. The measure of probability was greater than .01 and coupled with the other results, the conclusions was drawn that between students in education and social work the mean difference was significant in favor of the School of Social Work.

In general, therefore, the data indicated that in terms of statistically significant differences in reading rate the School of Education was surpassed by the Schools of Arts and Sciences, Social Work, and Business Administration, and was generally on par with the School of Library Service.

School of Arts and Sciences as Compared with Other Schools in Reading Rate.-- Data in Table 8 revealed that between the School of

Arts and Sciences and the School of Library Service, the difference in means was 96.94, with a standard error of difference between them of 8.46. The observed "t" ratio was 11.46 and significant at the 5 percent level of confidence. These data, in conjunction with a probability measure greater than .01 indicated that in reading rate the students in arts and sciences and library service were different in favor of the School of Library Service.

When the School of Arts and Sciences was compared with the School of Social Work in mean reading rate the difference between the means was 71.37, the standard error of this difference, 2.45, and the observed probability, greater than .01. The resulting "t" ratio of 29.13 was decidedly significant at the .05 level of confidence, and hence, led to the conclusion that in reading rate students in arts and sciences and social work were not comparable, with the decided advantage in the School of Social Work.

In comparison of mean reading rate scores the School of Arts and Sciences and the School of Business Administration showed a difference between the means of 82.58, a standard error of this difference of 4.34, and a resulting "t" ratio of 4.34. The probability was greater than .01. It was concluded, therefore, that in average reading rate the students in arts and sciences and business were different, with the School of Business Administration exceeding the School of Arts and Sciences.

In general the data indicated that in terms of significant differences in reading rate the School of Arts and Sciences was exceeded in reading rate when all schools were taken into consideration.

School of Business Administration as Compared with Other Schools in Reading Rate.-- Data in Table 8 showed the difference between mean performances in reading rate of the School of Business and the School of Library Service to be 14.36, with a standard error of difference between them of 9.46. Subjection of the data to the "t" test of significance yielded a ratio of .15 which was negligible at the .05 level of confidence. The observed probability was .8808, and the results led to the conclusion that students in business administration and library service are not significantly different in reading rate.

When the means of students in the School of Business Administration and Social Work were compared it was noted that the difference was 11.21, the standard error of difference between them, 4.90, and the resulting "t" ratio, 2.29 at the .05 level of confidence. The probability of the frequency of occurence of this type of performance was .0220. These results indicated that the numerical difference between reading rate test performances of the students in business and social work was significant.

In both instances it was concluded that in the area of reading rate students in the School of Business Administration tended to be on an higher level or comparable, when considered in terms of all other schools.

School of Library Service as Compared with Another School in Reading Rate.-- When the mean reading rate performances of the Schools of Library Service and Social Work were compared, it was noted that the difference was 25.57, the standard error of the difference between them, 8.78, and the resulting "t" ratio, 2.91. The probability of frequency of occurence was found to be .0036, and it was concluded that between mean performances the students in library service and social work were different in favor of the latter.

In general comparison with all schools the School of Library Service was noted to be exceeded by the School of Social Work, comparable to the School of Education, and superior to the Schools of Arts and Sciences and Business Administration.

TABLE 9

MEAN, STANDARD DEVIATION, AND STANDARD ERROR OF THE MEAN, OCTOBER, 1962 COMPREHENSION

School	Number	Mean	Standard Deviation	Standard Error
Arts and Sciences	67	264.76	87.50	10.77
Business Adm.	22	176.72	19.90	4.34
Education	77	175.94	28.80	3.31
Library Service	11	181.09	50.80	8.45
Social Work	39	179.84	14.80	2.40

General Measures of Comprehension, 1962

Performances on the Comprehension Sections of the Iowa Silent Reading Test, Advanced Form AM.-- Table 9 shows the mean, standard deviation and standard error of the mean for the five schools in the area of comprehension for October, 1962. The School of Arts and Sciences, with a mean of 264.75, surpassed the remaining schools in this area. But the degree of variability among the scores tended to make the mean scores an inadequate pepresentation of the performance level of the group. The Schools of Business Administration, Education, Library Service, and Social Work were comparable in the mean scores, ranging from 176.72, 175.94, 181.09, and 179.84, respectively. The measures of variability indicated that the dispersion represented made the obtained mean scores meaningless as to the general performance levels of the different groups. The wide scattering of scores indicated a great degree of variability.

Comparative Data in the Area of Comprehension. Table 10 presents comparative data based on the performance levels in the area of comprehension of students enrolled in one school compared with those enrolled in every other school.

School of Education as Compared with Other Schools in Comprehension.-- Table 10 indicates students in the School of Arts and Sciences as having a higher average comprehension than the enrollees of the School of Education. The difference between the means was

TABLE 10

COMPARATIVE DATA OF READING COMPREHENSION, OCTOBER, 1962

School	Difference Between Means	Standard Error of Difference Between Means	"t"	p
Education				
Arts and Sciences	88.82	3.40	26.12	.01
Business Adm.	.78	5.40	.14	.8886
Library Service	5.15	9.07	.57	.5686
Social Work	3.90	3.40	1.15	.2502
Arts and Sciences				
Business Adm.	88.04	11.58	7.60	.01
Library Service	83.67	13.69	6.12	.01
Social Work	84.92	10.78	7.88	.01
Business Administration				
Library Service	4.37	9.49	.46	.6456
Social Work	3.12	4.37	.71	.4778
Library Service				
Social Work	1.25	8.49	.15	.8808

88.82 with a standard error of the difference between the means of 3.40. The resulting "t" ratio of 26.12 indicated the difference in average ratings of the two schools to be overly significant at the .05 level of confidence. It was noted, furthermore, that the probability of such an occurence was greater than .01. These specific data provided the basis for the conclusion that between the School of Education and the School of Arts and Sciences the difference in comprehension was decidedly significant in favor of the latter.

When the School of Education and the School of Library Service were compared as to comprehension the differences between the means was 5.15; the standard error of the difference between the two means was 9.07; and the "t" ratio was .57. At the .05 level of confidence the difference was not significant, and the probability of such a result's occuring was .5686. These statistics led to the conclusion that between the students in the School of Education and the School of Library Service the difference in comprehension was purely by chance.

The School of Education, when compared with the School of Business Administration showed a difference between the two means of .78, a standard error of the difference between them of 5.40, and a resulting "t" ratio of .14. At the .05 level of confidence the latter value was negligible and the probability of such an occur-

rence was .8886. This difference between mean comprehension of the students in business and education was due to chance.

Between the School of Education and the School of Social Work the difference in means was 3.90 with a standard error of the difference between them computed to be 3.40. The obtained "t" ratio was 1.15 indicating no significance in comprehension at the 5 percent level of confidence. The measure of probability was .2502 and coupled with the other results, the conclusion was drawn that between students in education and social work the mean difference was a matter of chance.

In general, therefore, the data indicated that in terms of statistically significant differences in comprehension the School of Education was surpassed by the School of Arts and Sciences and was generally on par with the remaining schools.

School of Arts and Sciences as Compared with Other Schools in Comprehension.-- Data in Table 10 revea;ed that between the School of Arts and Sciences and the School of Library Service, the difference in means was 83.67, with a standard error of difference between them of 13.69. The observed "t" ratio was 6.12 and significant at the 5 percent level of confidence. These data, in conjunction with a probability measure greater than .01 indicated that in comprehension the students in arts and sciences and library service were different with the latter having the advantage.

When the School of Arts and Sciences was compared with the School of Social Work in mean comprehension the difference between the means was 84.92, the standard error of this difference, 10.78, and the observed probability, greater than .01. The resulting "t" ratio of 7.88 was impressively significant at the .05 level of confidence, and hence, led to the conclusion that in comprehension students in arts and sciences and social work were not comparable, with the latter exceeding.

In comparison of mean comprehension scores the School of Arts and Sciences and the School of Business Administration showed a difference between the means of 88.04, a standard error of this difference of 11.58, and a resulting "t" ratio of 7.60, with an observed probability greater than .01. It was concluded, therefore, that in average comprehension the students in arts and sciences and business were different, with the School of Business Administration surpassing the former.

In general the data indicated that in terms of significant differences in comprehension the School of Arts and Sciences was surpassed when all schools were taken into consideration.

School of Business Administration as Compared with Other Schools in Comprehension.-- Data in Table 10 showed the difference between mean performances in comprehension of the School of Business and the

School of Library Service to be 4.37, with a standard error of difference between them of 9.49. Subjection of the data to the "t" test of significance yielded a ratio of .46 which was insignificant at the .05 level of confidence. The observed probability was .6456 and the results led to the conclusion that students in business administration and library service differ by chance in comprehension.

When the means of students in the Schools of Business Administration and Social Work were compared it was noted that the difference was 3.12, the standard error of the difference between them 4.37, and the resulting "t" ratio , .71 at the .05 level of confidence. The probability of the frequency of occurence of this type of performance was .4778. These results indicated that the numerical difference between comprehension test performances of the students in business and social work was a matter of chance.

In both instances it was noted that in the area of comprehension students in the School of Business Administration tended to be comparable in performance level when considered in terms of all other schools.

School of Library Service as Compared with Another School in Comprehension.-- When the mean comprehension performances of the Schools of Library Service and Social Work were compared, it was noted that the difference was 1.25, the standard error of the differ-

erence between them, 8.49, and the resulting "t" ratio , .15. The probability of frequency of occurrence was found to be .8808, and it was concluded that between mean performances the students in library service and spcial work were not significantly different, with any difference due to chance.

In general comparison with all schools the School of Library Service was noted to be above or comparable to all other schools.

TABLE 11

MEAN, STANDARD DEVIATION AND STANDARD ERROR OF THE MEAN FOR OCTOBER, 1962 MEDIAN SCORE

School	Number	Mean	Standard Deviation	Standard Error
Arts and Sciences	67	256.36	89.75	11.05
Business Adm.	22	168.50	17.80	3.89
Education	77	167.49	15.04	1.72
Library Service	11	179.54	51.20	16.20
Social Work	39	174.71	17.30	2.81

General Measures of Median Scores, 1962

Performances on the Overall Reading Test, Median Scores of the Iowa Silent Reading Test, Advanced Form AM.-- Table 11 shows the mean, standard deviation and standard error of the mean for the five schools on overall reading test performance for October, 1962. The School of Arts and Sciences obtained a mean score of 256.36 on the overall reading test, which exceeded the remaining schools. The degree of variability, as determined by the standard deviation, indicated that the dispersion of scores was great. The Schools of Social Work and Library Service were comparable in mean scores of 174.71 and 179.54, respectively. The scattering of scores was great, indicating the variability of the mean scores as presented here. The Schools of Educationa and Business Administration were comparable with mean s ores of 167.49 and 168.50, respectively. The smallest variability was in the School of Education, with a standard deviation of 15.03, however, there was a wide scatter of scores in that school as well. These scores were indicative of the variability that existed in the overall median scores.

Comparative Data in the Area of Overall Reading Test Scores. Table 12 presents comparative data based on the performance levels in the area of median scores of students enrolled in one school compared with those enrolled in every other school.

TABLE 12

COMPARATIVE DATA FOR OVERALL MEDIAN SCORES FOR OCTOBER, 1962

School	Difference Between Means	Standard Error of Difference Between Means	"t"	p
Education				
Arts and Sciences	88.87	11.18	7.95	.01
Business Adm.	1.01	4.25	.24	.8104
Library Service	12.05	16.29	.74	.4592
Social Work	7.22	3.29	2.19	.0286
Arts and Sciences				
Business Adm.	87.86	11.71	7.50	.01
Library Service	76.82	19.59	3.92	.01
Social Work	81.65	11.04	7.39	.01
Business Administration				
Library Service	11.04	16.65	.66	.5092
Social Work	6.21	4.79	1.29	.1970
Library Service				
Social Work	4.83	16.44	.29	.7719

School of Education as Compared with Other Schools in Median Scores.-- Table 12 indicates students in the School of Arts and Sciences as having a higher average median score than the enrollees of the School of Education. The difference between the means was 88.87 with a standard error of the difference between the means of 11.18. The resulting "t" ratio of 7.95 indicated the difference in average ratings of the two schools to be significant at the .05 level of confidence. It was noted, furthermore, that the probability of such an occurence was greater than .01. These specific data provided the basis for the conclusion that between the School of Education and the School of Arts and Sciences the difference in median scores was significantly favorable for the School of Arts and Sciences.

When the School of Education and the School of Library Service were compared as to median scores the differences between means was 12.05; the standard error of the difference between the two means was 16.29; and the "t" ratio was .74. At the .05 level of confidence the difference was negligible and the probability of such a result's occuring was .4592. These statistics led to the conclusion that between the students in the School of Education and the School of Library Service the difference in median scores was due to chance.

The School of Education, when compared with the School of Business Administration showed a difference between the two means of

101, a standard error of the difference between them of 4.25, and a resulting "t" ratio of .24. At the .05 level of confidence the latter value was insignificant and the probability of such an occurence was .8104. This difference between mean median scores of the students in business and education was a matter of chance.

Between the School of Education and the School of Social Work the difference in means was 7.22, with a standard error of the difference between them computed to be 3.29. The obtained "t" ratio was 2.19 indicating a significance in median score differences at the 5 percent level of confidence. The measure of probability was .0286 and coupled with the other results, the conclusion was drawn that between students in education and social work the mean difference was favorable for the latter school.

In general, therefore, the data indicated that in terms of statistically significant differences in median scores the School of Education was surpassed by the School of Arts and Sciences and was generally on par with all other schools.

School of Arts and Sciences as Compared with Other Schools in Median Scores.-- Data in Table 12 revealed that between the School of Arts and Sciences and the School of Library Service, the difference in means was 76.82 with a standard error of difference between them of 19.59. The observed "t" ratio was 3.92 and signifi-

cant at the 5 percent level of confidence. These data, in conjunction with a probability measure greater than .01 indicated that in median scores the students in arts and sciences and library service were different, with the latter having the advantage.

When the School of Arts and Sciences was compared with the School of Social Work in mean median scores the difference between the means was 81.65, the standard error of this difference, 11.04 and the observed probability greater than .01. The resulting "t" ratio of 7.39 was overly significant at the .05 level of confidence, and hence, led to the conclusion that in median scores students in arts and sciences and social work were not comparable , with the advantage in the latter.

In comparison of mean median scores the School of Arts and Sciences and the School of Business Administration showed a difference between the means of 87.86, a standard error of this difference of 11.71, and a resulting "t" ratio of 7.50. The probability observed was greater than .01. It was concluded, therefore, that in average median scores the students in arts and sciences and business were different, with the latter exceeding the former.

In general the data indicated that in terms of significant differences in median scores the School of Arts and Sciences was above, highly similar, or below performance levels when all schools were taken into consideration.

School of Business Administration as Compared with Other Schools in Median Scores.-- Data in Table 12 showed the difference between mean performances in median scores of the School of Business and the School of Library Service to be 11.04, with a standard error of difference between them of 16.65. Subjection of the data to the "t" test of significance yielded a ratio of .66 which was not significant at the .05 level of confidence. The observed probability was .5092 and the results led to the conclusion that students in business administration and library service differ by chance in median scores.

When the means of students in the School of Business Administration and Social Work were compared it was noted that the difference was 6.21, the standard error of difference between them, 4.79, and the resulting "t" ratio, 1.29 at the .05 level of confidence. The probability of the frequency of occurence of this type of performance was .1970. These results indicated that the numerical difference between median score test performances of the students in business and social work was a matter of chance.

In both instances it was concluded that in the area of median scores students in the School of Business Administration tended to be above or on par when considered in terms of all other schools.

School of Library Service as Compared with Another School in Median Scores.-- When the mean median score performances of the

Schools of Library Service and Social Work were compared, it was noted that the difference was 4.83, the standard error of the difference between them, 16.44, and the resulting "t" ratio, .29. The probability of frequency of occurence was found to be .7719, and it was concluded that between mean performances the students in library service and social work were not significantly different.

In general comparison with all schools the School of Library Service was noted to be above or on a highly similar level with the total population.

CHAPTER III

SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Basic Framework and Procedure

The ability to adjust oneself adequately to achieve the given purposes identified for specific reading makes for an astute reader as well as a student qualified to function satisfactoriyl in the chosen area of endeavor. Persons who are preparing for the more professional fields, along with those preparing to specialize in certain areas of the arts and sciences should be capable of employing varied rates of speed determined by the specific purposes for engaging in the given reading act.

This study was designed to determine any differences which might have existed in reading rate and comprehension performance levels among students enrolled in the five schools of Atlanta University during the years 1961-1963.

The purposes of this study were to investigate the following:

1. Did the students enrolled in any one school excel over those enrolled in another school?
2. Did the students enrolled in any one school perform to the same degree as those enrolled in another school?

3. Did the students enrolled in one school perform to a lesser degree than those enrolled in another school?
4. Did the students enrolled in the more professional schools tend to reflect significant differences when compared with those within the arts and sciences?
5. What implications did those findings provide for upgrading and refining the program in reading for graduate students?

This study was restricted by three major limitations.(1) The Iowa Silent Reading Test was the only standardized instrument used to measure reading status for the compared period. (2) The period of investigation was for a two year period, 1961-1963. (3) The method of investigation was the general survey procedures of the descriptive method of research.

The procedure of this study included the following steps:

1. The researcher made a survey of the related literature to the present study.
2. Permission to execute the study was secured from the appropriate school officials.
3. The subjects were those persons enrolled in Atlanta University making up the total population sampling. 1961-62 and 1962-63.
4. The subjects' reading rate, comprehension and median scores were treated statistically for the purposes of general description and comparisons. The mean, standard deviation and

standard error of the means were used to describe the distributions and measures of differences between the means.

5. The difference between the means and standard error of the difference between the means were found to compute the significance of the differences and apply the "t" test of significance at the .05 level of confidence.

The materials used in this study were secured through the use of the Iowa Silent Reading Test, Advanced Form AM, which was administered at the beginning of the first semester of enrollment in the five schools making up the testing population for October, 1961 and October, 1962. The data derived from the test results were analyzed and interpreted statistically.

A review of the related literature and research studies revealed that in the nature of comprehension, the skills enable the reader to function profitably in the reading act, through broad and deep interpretation. The concept of rate as being an independent factor in the reading process is not wholly accepted. It is felt that there is a direct correlation between rate and comprehension. As to the relationship between these two factors, if there exists a relationship, it is determined by the level of maturity of the reader. The need for specific skills for functioning in the content areas was stressed as requiring instruction by the respective teachers. The relation-

ship between general comprehension skills and reading rate was evidenced in related studies dealing with reading proficiency of college students. The fact that students have reflected difficulties in the more specialized areas of comprehension seemed to imply a need for strengthening the program of reading in content areas.

Summary of Findings

In agreement with the purposes of this study, this section represents a summary of findings which resulted from an analysis and interpretation of the data presented in Chapter II.

The general reading rate performance levels are summarized below:

1. The School of Arts and Sciences, with a mean of 203.94, surpassed the Schools of Education and Library Service, with means of 184.34 and 180.97, respectively. The observed "t" ratio of 2.89 and 3.34, respectively, were significant at the .05 level of confidence.

2. The School of Library Service, with a mean of 180.79, performed to a greater degree than did the School of Business Administration with a mean of 202.0 as indicated by the observed "t" of 2.22, which was significant at the .05 level of confidence.

3.

3. The School of Education, with a mean of 180.61, was comparable to the School of Library Service with a mean of 179.09 and an observed "t" ratio of .17 which was not significant at the .05 level of confidence.

4. The Schools of Social Work, Business Administration and Arts and Sciences with means of 204.66, 193.45 and 276.03, surpassed the School of Education, with a mean of 180.61 and observed "t's" of 7.26, 4.81 and 39.76, respectively.

5. The School of Social Work, with a mean of 204.66, exceeded the School of Business Administration, with a mean of 193.45, as indicated by the "t" of 2.29, which was significant at the .05 level of confidence.

The comprehension performance levels are summarized in the sections following:

1. The School of Arts and Sciences, with a mean of 264.76, surpassed the School of Education, with a mean of 175.94, as indicated by the "t" ratio of 26.12, which was significant at the .05 level of confidence.

2. The Schools of Social Work, Library Service, and Business Administration were comparable to the School of Education as indicated by the "t"'s of 1.15, .57, and .78, respectively. The obtained mean scores were 179.84, 181.09, and 176.72, respectively. The mean for the School of Education was 175.94.

3. The Schools of Business Administration, Social Work and Library Service, with mean scores of 176.72, 179.84, and 181.09, surpassed the School of Arts and Sciences, as indicated by the "t" ratios of 7.88, 7.60, and 6.16, which were significant at the .05 level of confidence.

4. The School of Social Work surpassed the School of Library Service, as was indicated by the "t" ratio of 4.53, which was significant at the .05 level of confidence. Again the School of Arts and Sciences maintained the advantage in comprehension.

The median performance levels are summarized here.

1. The Schools of Social Work, Library Service and Arts and Sciences, with mean scores of 174.71, 174.12 and 256.36, performed on a higher level than did the School of Education, with a mean score of 167.49, as indicated by the "t" ratios of 2.19, 2.32 and 7.95, respectively, which were significant at the .05 level of confidence.

2. The Schools of Social Work, Library Service and Business

Administration, with mean scores of 169.42, 174.12 and 174.62, were comparable to the School of Arts and Sciences, with a mean of 172.90, as indicated by the "t" ratios of .68, .20, and .16, respectively, which were not significant at the .05 level of confidence.

3. The School of Library Service, with a mean score of 174.12, was surpassed by the School of Social Work, with a mean score of 169.42, as indicated by the "t" of 4.35, which was significant at the .05 level of confidence.

Conclusions

Conclusions relative to the findings of this study.-- The findings of this study warranted the following conclusions on the basis of the purposes established by the researcher.

1. Since the findings indicated that in the area of general reading rate, each school excelled over at least one other school, was comparable to at least one other school, or inferior to one school, it was concluded that superiority in rate of reading did not inhere in any one school, although generally the School of Arts and Sciences held the advantage.

2. In the area of comprehension, each school excelled at least one other school, was comparable to at least one, or inferior to one school. However, it was noted that generally students in schools requiring the greatest amount of reading seemed to maintain a significant advantage in several instances.

3. The findings show that in the area of overall median scores, each school excelled, was comparable, or was inferior to at least one other school

4. Through interpolated grade equivalents ranging from grades 9 to 13.0, it was possible to conclude that in general reading proficiency most of the students were performing with skills comparable to freshman college level.

5. In general, students in the School of Arts and Sciences rated higher in more areas than either of the other schools, and thus supported the conclusion that students in professional schools seldom enjoyed a consistently high advantage in rate, comprehension or general achievement

Implications

Implications relative to the findings of this study.--

1. Although it appeared that students in the respective schools were operating on a relatively high level of reading rate, the wid e range in scores would suggest a need for studying flexibility in rates of reading as the students encounter different purposes and materials.

2. Generally students in all schools rated lower in comprehension than in rate of reading. This general lag between understanding of materials and rate of reading was accepted as indicative of a very real need of reading improvement.

3. In general, average reading performances were lower than in either of the separate areas of comprehension and rate. This implied a need for helping many of the students effect a more mature balance in the use of such skills as word meaning, directed reading, locational skills, and proficiency in poetry reading.

4. It might be inferred that students in the professional schools did not face the same concentrated reading demands as those students in some of the basic disciplines represented in the School of Arts and Sciences . This inference referred specifically to such departments as English, Sociology and Political Science.

5. The comparatively higher ratings in the School of Arts and Sciences might infer the need for more advanced services than are now available.

Recommendations

The findings, conclusions, and implications are basic to the following recommendations:

1. Beyond the present offerings in reading the faculties of the five schools should work together with the reading program to upgrade the performance levels of students who reflect considerable gaps in reading skills in spite of a relatively high average score.

2. The administrative and instructional personnel should work toward the improvement of the reading performance levels of all students in the five schools, so that they might be able to function more profoundly in the area of reading in general.

3. The possibility of reading consultative services for the more advanced readers should be explored in the interest of the national trend toward challenging good as well as average and poorer students toward the maximum potential.

4. The University reading teachers and regular faculty might consider the advisability of avoiding what might be a tendency for students in the more professional areas to neglect the kind of literature that is believed to contribute to the up-grading of reading comprehension and rate to a greater degree than a concentration on more technical materials.

5. There should be follow-up or continuation studies to compare departments and special areas within the various Schools represented so that many of the foregoing implications and recommendations might be farther removed from areas of possibilities.

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